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**Title** *EM Performance Analysis of Free-standing FSS Based on Mode Matching-GSM Technique*

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**Abstract**

*The present report deals with the analysis of EM characteristics of free-standing square/rectangular aperture FSS using Mode Matching-GSM technique. The transmission efficiency of square aperture FSS is computed and validated with that reported in open literature. The excellent match between the computations and reported results shows the efficacy of the method. The transmission and reflection characteristics of rectangular FSS are also studied at different angles of incidence. The parametric study shows that for a given length, the resonance frequency of rectangular aperture FSS decreases with width of the aperture.*